

## REPORT ON BOILERS.

No. 2331

Received at London Office -6 AUG 1929

Date of writing Report *25 July 1929* When handed in at Local Office *2nd Aug 1929* Port of *Barrow*  
No. in Reg. Book *30378* Survey held at *Barrow* Date, First Survey *Dec 7th 1927* Last Survey *9th Aug 1929*  
on the *Alt Vign screw steamer "Orontes"* (Number of Visits *44*) Tons *Gross 19940*  
*Net 12009.81*  
Master *✓* Built at *Barrow* By whom built *Bickers-Armstrongs Ltd* Yard No. *634* When built *1929*  
Engines made at *Barrow* By whom made *Bickers-Armstrongs Ltd* Engine No. *634* When made *1929*  
Boilers made at *Barrow* By whom made *Barrow* Boiler No. *634* When made *1929*  
Nominal Horse Power *3825* Owners *Orient Steam Navigation Co Ltd* Port belonging to *Barrow*

MULTITUBULAR BOILERS - MAIN, ~~AUXILIARY~~ OR ~~DONKEY~~.

Manufacturers of Steel *Wm Beardmore & Co Ltd & Consett Iron Co Ltd* (Letter for Record *S*)  
Total Heating Surface of Boilers *39846 sq ft* Is forced draught fitted *Yes* Coal or Oil fired *Oil*  
No. and Description of Boilers *Six double ended cylindrical multitubular* Working Pressure *215 lb*  
Tested by hydraulic pressure to *343 lb* Date of test *8/1/28 & 2/12/28* No. of Certificate *415, 416, 419, 420* Can each boiler be worked separately *Yes*  
Area of Firegrate in each Boiler *290 sq ft* No. and Description of safety valves to each boiler *Four direct spring loaded (high lift)*  
Area of each set of valves per boiler *per Rule 28.92* Pressure to which they are adjusted *220 lb* Are they fitted with easing gear *Yes*  
In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler *✓*  
Smallest distance between boilers *on plates and bunkers on each end* *18"* Is oil fuel carried in the double bottom under boilers *No*  
Smallest distance between shell of boiler and tank top plating *22 1/2"* Is the bottom of the boiler insulated *Yes*  
Largest internal dia. of boilers *16' - 6"* Length *21' - 9"* Shell plates: Material *Steel* Tensile strength *30/34 tm*  
Thickness *1 1/2"* Are the shell plates welded or flanged *No* Description of riveting: circ. seams *end double lap*  
*long. seams* *Yell (double butt straps)* Diameter of rivet holes in *circ. seams 1 9/16 8 1 9/32* *inter. Yell lap*  
*long. seams 1 9/16* Pitch of rivets *4.01 x 4.2 8 1 4.49*  
Percentage of strength of circ. end seams *plate 61.1* Percentage of strength of circ. intermediate seam *plate 66.2*  
*rivets 48.4* *rivets 64.8*  
Percentage of strength of longitudinal joint *plate 85.1* Working pressure of shell by Rules *215.6 lb*  
*rivets 84.5* *combined 84.4*  
Thickness of butt straps *outer 1 5/32* No. and Description of Furnaces in each Boiler *6 Morison 6 c.f.*  
*inner 1 9/32* Material *Steel* Tensile strength *26/30 tm* Smallest outside diameter *44.4375*  
Length of plain part *top* Thickness of plates *crown 2 3/32* Description of longitudinal joint *Weld*  
*bottom* Dimensions of stiffening rings on furnace or c.c. bottom *✓* Working pressure of furnace by Rules *222 lb*  
End plates in steam space: Material *Steel* Tensile strength *26/30 tm* Thickness *1 3/16* Pitch of stays *16 1/2 x 18"*  
How are stays secured *Double nuts* Working pressure by Rules *224 lb*  
Tube plates: Material *front Steel* Tensile strength *26/30 tm* Thickness *15/16*  
*back Steel* *26/30 tm* *15/16*  
Mean pitch of stay tubes in nests *11 1/4 x 4 1/2* Pitch across wide water spaces *13 1/2* Working pressure *front 221 lb*  
*back 216 lb*  
Girders to combustion chamber tops: Material *Steel* Tensile strength *28/32 tm* Depth and thickness of girder  
at centre *8" x 1 1/2* Length as per Rule *30 2 3/32* Distance apart *8 1/4* No. and pitch of stays  
in each *2 @ 10"* Working pressure by Rules *216 lb* Combustion chamber plates: Material *Steel*  
Tensile strength *26/30 tm* Thickness: Sides *2 3/32* Back *2 3/32* Top *2 3/32* Bottom *1 5/16*  
Pitch of stays to ditto: Sides *4 3/4 x 10 3/8* Back *8" x 10 3/16* Top *8 1/4 x 10* Are stays fitted with nuts or riveted over *Nuts*  
Working pressure by Rules *216 lb* Front plates at bottom: Material *Steel* Tensile strength *26/30 tm*  
Thickness *1 5/16* Lower back plate: Material *✓* Tensile strength *✓* Thickness *✓*  
Pitch of stays at wide water space *✓* Are stays fitted with nuts or riveted over *✓*  
Working Pressure *✓* Main stays: Material *Steel* Tensile strength *28/32 tm*  
Diameter *At body of stay, 2 3/4* No. of threads per inch *6* Area supported by each stay *294 sq in*  
*Over threads* Working pressure by Rules *220 lb* Screw stays: Material *Steel* Tensile strength *26/30 tm*  
Diameter *At turned off part, 1 3/4* No. of threads per inch *9* Area supported by each stay *82.5 sq in*  
*Over threads*



Working pressure by Rules

220 lb

Are the stays drilled at the outer ends

no

Margin stays: Diameter

At turned off part,

or

Over threads

1 1/8"

No. of threads per inch

9

Area supported by each stay

Working pressure by Rules

Tubes: Material

Iron

External diameter

Plain

2 1/2

Stay

2 7/8

Thickness

8 hsg.

1/4 5/16 3/8

No. of threads per inch

9

Pitch of tubes

3 3/4 x 3 3/4

Working pressure by Rules

300 lb

Manhole compensation: Size of opening in

shell plate

21 1/2 x 14

Section of compensating ring

4 3/8 x 1 1/2 flanged

No. of rivets and diameter of rivet holes

36 — 1 9/16

Outer row rivet pitch at ends

10 1/2

Depth of flange if manhole flanged

Steam Dome: Material

Tensile strength

Thickness of shell

Description of longitudinal joint

Diameter of rivet holes

Pitch of rivets

Percentage of strength of joint

Plate

Rivets

Internal diameter

Working pressure by Rules

Thickness of crown

No. and diameter of

stays

Inner radius of crown

Working pressure by Rules

How connected to shell

Size of doubling plate under dome

Diameter of rivet holes and pitch

of rivets in outer row in dome connection to shell

Type of Superheater

Manufacturers of

Tubes

Steel castings

Number of elements

Material of tubes

Internal diameter and thickness of tubes

Material of headers

Tensile strength

Thickness

Can the superheater be shut off and

the boiler be worked separately

Is a safety valve fitted to every part of the superheater which can be shut off from the boiler

Area of each safety valve

Are the safety valves fitted with easing gear

Working pressure as per

Rules

Pressure to which the safety valves are adjusted

Hydraulic test pressure:

tubes

, castings

and after assembly in place

Are drain cocks or valves fitted

to free the superheater from water where necessary

Date of writing

No. in Reg. Book.

30348

Master

Engines made

Boilers made

Nominal Horsepower

MULTIPLE

Manufactured by

Total Heat

No. and De

Tested by

Area of Fire

Area of

FOR VICKERS-ARMSTRONGS LIMITED. *The force*

The foregoing is a correct description,

*Manufacturer*

Dates	{	During progress of	{
of Survey		work in shops - -	
while	{	During erection on	{
building		board vessel - - -	

Are the approved plans of boiler and superheater forwarded herewith *Yes*  
(If not state date of approval.)

Total No. of visits

**GENERAL REMARKS** (State quality of workmanship, opinions as to class, &c.) These boilers have been built in accordance with the approved plans and the Rules. The workmanship and materials are good. They have been efficiently fitted on board the vessel and their safety valves adjusted under steam.

Survey Fee	...	...	£
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Travelling Expenses (if any) £

When applied for.

192

When received.

192

*Engineer Surveyor to Lloyd's Register of Shipping.*

## Committee's Minute

FRI. 9 AUG 1929

*Assigned*

See Graph attached

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Lloyd's Register  
Foundation